

LONDON TOWNSHIP

SEWAGE TREATMENT PLANT

ANNUAL REPORT

1960

PREPARED BY

THE DIVISION OF PLANT OPERATIONS

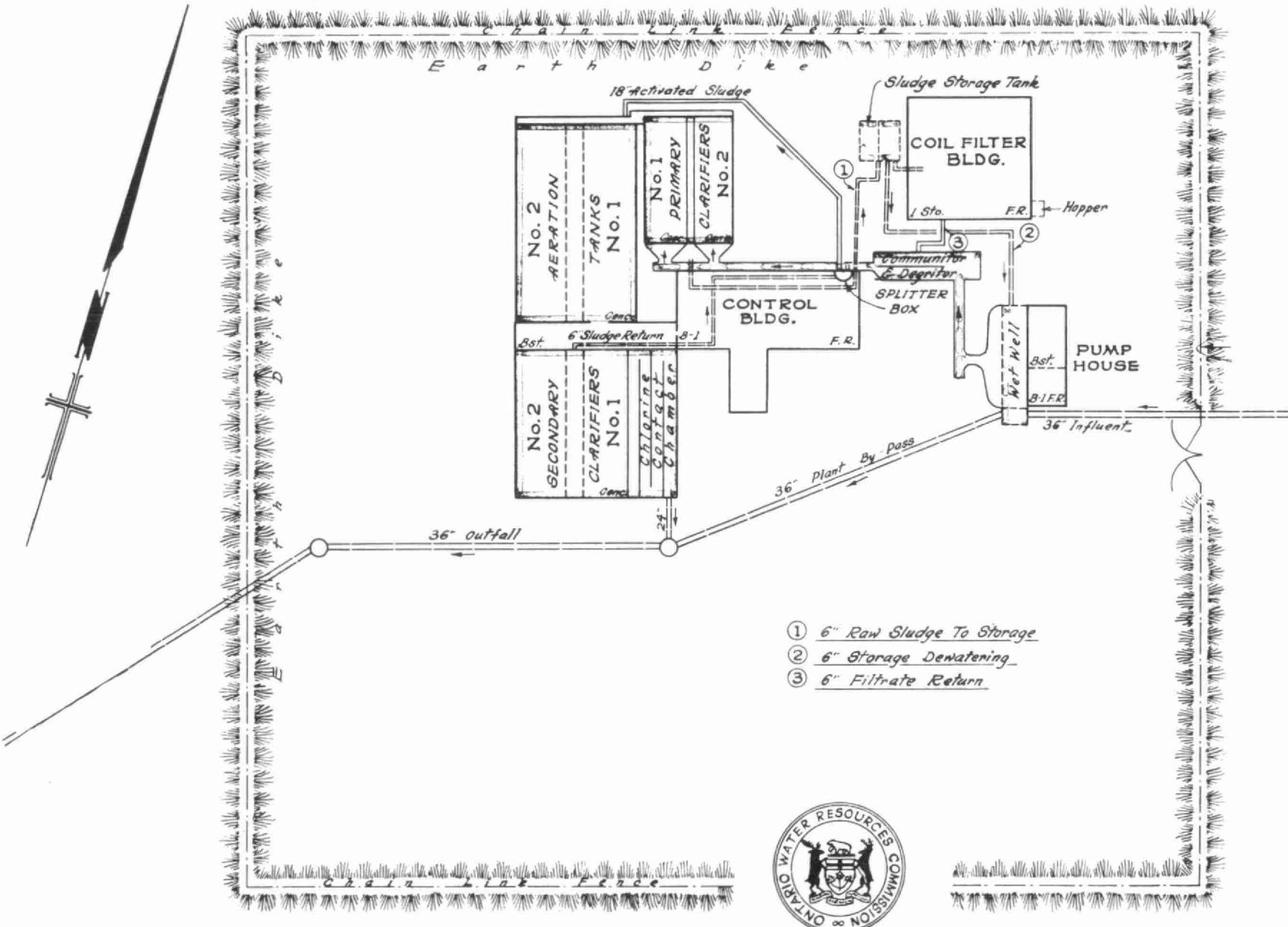
ONTARIO WATER RESOURCES COMMISSION

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ONTARIO WATER RESOURCES COMMISSION
 SEWAGE TREATMENT PLANT
 TWP. OF LONDON - ONTARIO

TOWNSHIP OF LONDON
ADELAIDE STREET SEWAGE TREATMENT PLANT
OWRC PROJECT 58-S-27

GENERAL INTRODUCTION

During the 1950's, urban development took place in London Township at a fast pace. Drainage problems frequently occurred during the rainy seasons and many of the septic tanks were unsatisfactory. Township officials and the Ontario Water Resources Commission realized the need for a new sewage treatment plant to serve the north-east section of the township. The proposed sewered area to be serviced by the new plant extended from approximately Adelaide Street near the north branch of the Thames River, east beyond Clarke side road, south to Oxford Street and west to Adelaide Street.

During 1957, the Township of London entered into an agreement with the OWRC to finance, construct and operate a new sewage treatment plant on Adelaide Street North, and trunk sewers. The consulting firm of R. C. Dunn and Associates Ltd. was engaged to prepare plans and specifications for this project. Tenders were called on July 15, 1959 for the treatment plant and Kedrosky Contractors Limited, Galt, Ontario were awarded the contract. Tenders for the trunk sewers were called on March 1, 1960 and Matthews Construction Company Limited, London, Ontario were awarded this contract.

DESCRIPTION OF PLANT

The raw sewage flows into the influent manhole through a 36 inch diameter sewer. It enters the flow channel in the upper part of the wet well and is directed through a bar screen installed in the channel. The raw sewage is directed by gates into one or both sections of the wet well pumping basin. It is then pumped from the wet well to the flow

channel preceding the air degritter. There are three centrifugal raw sewage pumps located in the dry well with provision for two additional pumps in the future. These pumps operate automatically, their operation being controlled by the water level in the wet well.

Raw sewage is directed into the grit tank where it is aerated with diffused air. Inorganic material settles to the sump and is air lifted to the grit decanting channel where the water and grit are separated.

The effluent from the grit tank then passes through a comminutor where solid material is shredded and cut into finely divided particles.

The sewage flows into two rectangular primary settling tanks. The sludge settles to the bottom of the tanks and is scraped to the sump at the end of the tanks by the wooden flights of the collector system. The flights are brought to the surface to collect the grease and scum. The grease and scum flows into a scum tank by means of a roto-scum mechanism.

The primary effluent is directed into two rectangular aeration tanks. The mixed liquor is aerated by means of a diffused air assembly located in each tank along the lower side of one wall. Air is supplied by two blowers. Provision has been made for two additional blowers for the future. A foam spray system has been installed to minimize the foaming action which occurs in the aeration tanks.

The aeration tank effluent flows into two rectangular final settling tanks. The activated sludge settles to the bottom of the tanks and is scraped to the sump at the end of the tanks by wooden flights.

The final effluent flows into the chlorine contact chamber. A chlorine solution is fed into the chamber by means of a vacuum chlorinator. The effluent then passes through a 36 inch diameter sewer which discharges into the north branch of the Thames River.

The activated sludge, which is collected in the final settling tank sumps, flows by gravity through six slip-pipes and spills into a galvanized trough which extends across the head of both final tanks. The slip-pipes may be adjusted to draw various quantities of sludge from the sumps. Two vari-drive centrifugal pumps are used to transfer the activated sludge from the trough to the division box, where any selected percentage of flow can then be directed to the head of the aeration tanks or wasted to the primary clarifiers.

The raw sludge and scum which collects in the primary clarifiers is pumped by two positive displacement pumps to the sludge holding tank. The raw sludge is periodically drawn from the holding tank to a mixing chamber adjacent to the filter, where two coagulents, ferric chloride and a lime slurry are added. The mixture flows to an apron located immediately below the coilfilter drum.

A vacuum is applied to the inside of the rotating drum which causes the sludge mixture to adhere to the surface of the filter. After one revolution the vacuum is mechanically broken and the dewatered sludge cake drops onto a conveyor belt and is then trucked away. Normal reduction of the volume of the sludge is about 75%.

OPERATION

A Local Advisory Committee was formed in September, 1960 to enable the Division of Plant Operations to work in close cooperation with local authorities. The Committee consists of the Reeve, Deputy Reeve, two Councillors and the Township Administrator.

Interviews for staff were conducted during the second week of November and Mr. J. McNamara, chief operator, and Mr. J. Wright, operator, were hired.

Operation (Cont'd.)

The plant was put into initial operation on November 14, 1960. No major problems occurred. Both the flow and strength of sewage entering the plant have been quite low and this has caused some operational difficulties. These two factors caused ice to build up in the tanks during the severe cold weather. Part of the plant effluent is being returned to the wet well, increasing the flow through the plant and thereby eliminating the ice problem. No comment on the efficiency of the plant can be made until such time as the solids concentration in the aeration section has increased to a reasonably normal operating level. In conjunction with the lack of mixed liquor solids it has also been impossible to build up any quantity of activated sludge in the final settling tanks. Time and increased flow will, of course, aid these problems.

Chlorination of the effluent will be carried out at this plant throughout the entire year.

A severe cold period in the latter part of December resulted in the freezing of one of the raw sewage pumps during the night. A gas heater was obtained and the pump was thawed out shortly after the trouble had been discovered. The pump was not damaged. This incident can, in part, be attributed to low flow with a resulting low temperature of the raw sewage in the wet well.

A number of minor construction deficiencies have been discovered since the plant was put into operation. The contractor has inspected the plant and has promised corrective action in the near future.

Operating expenses include the following:

payroll, fuel, power, chemicals, general supplies, equipment, maintenance, repairs, miscellaneous items.

The total operating costs incurred during the year 1960 amounted to \$2,110.62. The total estimated operating expenses excluding insurance for the year 1961 amount to \$26,000.00.

Frequent inspection visits were made by the mechanical and electrical technicians and the project engineer. There are no charges billed to the municipality for the services rendered by head office personnel.

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